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Jori Arrakoski

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ROBERT M BAUER, ESQ.
MacDonald Illig Jones & Britton LLP
Suite 700
100 State Street
Erie, PA 16507-1459

EXAMINER

SCHEIBEL, ROBERT C

ART UNIT

PAPER NUMBER

2419

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/089,326	Applicant(s) ARRAKOSKI ET AL.	
	Examiner ROBERT C. SCHEIBEL	Art Unit 2419	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 August 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 36-69, 71, 72, 80-84, 87 and 88 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 36-40, 46-50, 52-58, 66-68, 71, 72, 80-84, 87 and 88 is/are rejected.
- 7) ☒ Claim(s) 41-45, 51, 59-65 and 69 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/30/08</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

- Examiner acknowledges receipt of Applicant's Amendment filed 8/22/2008.
- Claims 36, 41, 52-54, 71, 72, 80-84, 87, and 88 are currently amended.
- Claims 70, 73-79, 85, and 86 have been cancelled with the current amendment.
- Claims 36-69, 71, 72, 80-84, 87, and 88 are currently pending.

Response to Arguments

1. Applicant's arguments, see the "Double Patenting" section on page 14, filed 8/22/2008, with respect to the rejection of claims 36, 52, 53, 54, 70, 86, 87, and 88 under obviousness-type double patenting have been fully considered and are persuasive. The rejection of claims 36, 52, 53, 54, 70, 86, 87, and 88 under obviousness-type double patenting has been withdrawn.

2. Applicant's arguments, see the "Claim Objections" section on pages 14-15, filed 8/22/2008, with respect to the objection to claims 36, 41, 54, 70, 75, and 87-88 have been fully considered and are persuasive. The objections to claims 36, 41, 54, 70, 75, and 87-88 have been withdrawn.

3. Applicant's arguments, see the "Claim Objections" section on pages 14-15, filed 8/22/2008, with respect to the objection to claim 52 have been fully considered but they are not persuasive. The claim language "capable of" which was objected to has not been amended; as such, the objection is maintained herein.

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4. Applicant's arguments, see the "Claim Rejections – 35 U.S.C. 112" section on page 15, filed 8/22/2008, with respect to the rejection of claims 41, 53, 70-79, and 85-86 under 35 U.S.C. 112, second paragraph, have been fully considered and are persuasive. The rejection of claims 41, 53, 70-79, and 85-86 under 35 U.S.C. 112, second paragraph, has been withdrawn.

5. Applicant's arguments, see the "Claim Rejections – 35 U.S.C. 112" section on page 15, filed 8/22/2008, with respect to the rejection of claims 52, 87, and 88 under 35 U.S.C. 112, second paragraph, have been fully considered but they are not persuasive. Regarding claim 52, the claim is for a communications unit, but the claim does not include any structural limitations and is still in narrative form. Regarding claims 87 and 88, the claims are for a processor and a controller, respectively. However, the body of the claim comprises method steps and neither claim includes structural limitations for the processor and controller.

6. Applicant's arguments, see the "Claim Rejections – 35 U.S.C. 101" section on page 15, filed 8/22/2008, with respect to the rejection of claim 87 under 35 U.S.C. 101 have been fully considered but they are not persuasive. As indicated in the previous rejection, the claim is for a processor configured to execute a computer program. However, the body of the claim contains method steps which appear to be nothing but the steps which the computer program comprises and fails to breathe any life into the processor. As such, Examiner interprets the claim to be for a computer program per se and thus rejects the claim under 35 U.S.C. 101.

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7. Applicant's arguments, see the "Claim Rejections – 35 U.S.C. 102(e)" section on pages 15-17, filed 8/22/2008, with respect to the rejection of claims 36, 37, 46, 47, 49, 50, 52-55, 67, 68, 70, 71, 83, 84, and 86-88 under 35 U.S.C. 102(e) have been fully considered but they are not persuasive.

In the first paragraph of this section, Applicant summarizes the rejection and indicates that the rejection is traversed. In the first paragraph on page 16, Applicant identifies a limitation that is allegedly not disclosed by the Haas reference. In the next few paragraphs, Applicant discusses Figure 3 of Haas and argues that the tier 2 network of Haas does not comprise a plurality of second mesh network tier subscriber units or that there is a second mesh network tier sink node configured to communicate with such second mesh network tier subscriber units. Applicant further argues that second tier network is described only as acting as a routing network between cluster heads and argues that the cluster head CH3 is not indicated as the cluster head of the second tier network.

Examiner respectfully disagrees as the claim language is broad and the Haas reference clearly reads on this claim language. As indicated in lines 37-65 of column 8 of Haas, the cluster heads CH1-CH4 "form a tier-2 network" and "the tier-1 and tier-2 networks are separate". Clearly, the network nodes which are CH1-CH4 can be interpreted to disclose the limitation of "a plurality of second mesh network tier subscriber units". Further, as indicated in Figure 3, as well as by the name cluster head, at least CH3 is a "sink node unit" and as it is part of the tier-2 network, it is reasonably interpreted as a "second mesh network tier sink node unit". Finally, as indicated in lines 37-65 of column 8 as well as in lines 30-31 of column 2, these nodes exchange

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messages and can do so wirelessly and thus the sink node is “configured to wirelessly communicate with the second mesh network tier subscriber units”.

While there may be differences between Haas and the invention described in the specification, Haas reads on the present broad claim language. Examiner recommends that Applicant amend the claim language to clearly distinguish the present invention from the prior art.

8. Applicant's arguments, see the first two paragraphs of the “Claim Rejections – 35 U.S.C. 103(a)” section on pages 17, filed 8/22/2008, with respect to the rejection of claims 38-40, 48, 56, 58, 66, 72-74, and 82 under 35 U.S.C. 103(a) have been fully considered but they are not persuasive.

In the first paragraph of this section, Applicant summarizes the rejection and indicates that the rejection is traversed. In the second paragraph, Applicant argues that there is no motivation to combine Haas and Acampora and requests that it be indicated what the motivation for such a combination would be. As indicated in the previous rejection and reiterated below, Examiner believes that the motivation for such a combination is to ensure that the communication at each of the two tiers remain separate and do not interfere with each other. Examiner believes that this is clearly suggested in the passage from lines 58-65 of column 6 of Acampora. In lines 58-60 of column 7, Acampora states that “communications in each of the two tiers may be, and preferably is, separately conducted from communications in the other tier”. In the passage through line 8 of column 7, Acampora lists other potential means for separating the communications between the two tiers. Examiner believes this clearly provides motivation to

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use one of those means (separate frequencies in each tier) to modify Haas (to separate the communications between the tiers).

9. Applicant's arguments, see the third and fourth paragraphs of the "Claim Rejections – 35 U.S.C. 103(a)" section on pages 17, filed 8/22/2008, with respect to the rejection of claims 41-45, 51, 59-65, 69, 75-81, and 85 under 35 U.S.C. 103(a) have been fully considered and are persuasive. The rejection of claims 41-45, 51, 59-65, 69, 75-81, and 85 under 35 U.S.C. 103(a) has been withdrawn.

Claim Objections

10. Claim **52** is objected to because of the following informalities:

Examiner objects to the use of "capable of wireless communication" because it can be interpreted as an optional requirement and not a positive recitation of communication or wireless communication. Examiner requests that Applicant either amend the claims to a positive recitation or provide arguments that these claims in fact positively recite the limitations in question.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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2. Claims **52, 71, 72, 80-84, 87, and 88** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim **52** is indefinite for a number of reasons which are detailed below.

The claim is drawn towards a communications unit, but does not indicate any structural elements which comprise the communications unit. The claim is written in narrative form and it is unclear what comprises the communications unit. Applicant must rewrite this claim to clearly define the subject matter sought to be described.

Claims **71, 72, and 80-84** are rejected as they depend from claim 52 and do not overcome the deficiencies indicated above.

Claim **87** is indefinite because the claim is drawn towards a processor configured to execute a computer program at a communications unit, but does not indicate any structural elements which comprise the processor. The claim is written in narrative form and it is unclear what comprises the communications unit.

Claim **88** is indefinite because the claim is drawn towards a controller for a communications unit, but does not indicate any structural elements which comprise the controller. The claim is written in narrative form and it is unclear what comprises the communications unit.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim **87** is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Although the claim is drawn towards a processor, the claim appears to be attempting to claim a disembodied computer program *per se*. The claim starts by claiming a processor and continues with method steps which appear to comprise nothing more than the steps the program is intended to execute. These steps only breathe life into the computer program and not into the processor, i.e. the computer program comprising the claimed steps. Thus, the main portion of the claim merely specifies what the computer program is configured to do. The claim does not in any way specify that the computer program is embodied or stored in any physical medium such as a computer-readable medium.

As indicated in pages 50-55 of “Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility”, functional descriptive material (such as a computer program) is non-statutory when claimed as descriptive material *per se*. Since this claim appears to be claiming the functional descriptive material *per se* as opposed to claiming it structurally and functionally interrelated as part of a physical medium, the claim is rejected as being directed to non-statutory subject matter.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims **36, 37, 46, 47, 49, 50, 52-55, 67, 68, 70, 71, 80, 81, 83, 84, 87, and 88** are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 6,304,556 to Haas.

Regarding claim **36**, Haas discloses a communications system comprising: a hierarchical mesh network comprising at least a first mesh network tier and a second mesh network tier (shown in Figure 3):

the first mesh network tier (tier-1 network 24 of Figure 3) comprising a plurality of first network subscriber units (the nodes shown in tier-1 network 24 of Figure 3) and a first network sink node unit (cluster head CH1) configured to wirelessly communicate with the first network subscriber units (see lines 30-31 of column 2); and

the second mesh network tier (tier-2 network 32 of Figure 3) geographically at least partly overlapping the first network (Figure 3 indicates that these networks at least partially geographically overlap) and comprising a plurality of second mesh network tier subscriber units (CH1, CH2, CH4 of Figure 3) and a second mesh network tier sink node unit (CH3 which is indicated as the cluster head of network 32) configured to wirelessly communicate with the second mesh network tier subscriber units (see lines 30-31 of column 2) ; and

a connection between the first mesh network tier sink node unit and a second mesh network tier unit configured to communicate in the second network (CH1 is the first mesh network sink node unit and it is connected to CH2 which is a second mesh network tier unit), whereby one of the first network subscriber units is configured to be provided with a

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communication path via the first mesh network tier sink node unit to said second mesh network tier unit (see lines 50-59 of column 8).

Regarding claims **52 and 53**, Haas similarly discloses the analogous limitations of these claims.

Regarding claim **54**, Haas discloses a communications system comprising a hierarchical mesh network comprising at least a first mesh network tier and a second mesh network tier (shown in Figure 3):

a first mesh network tier (tier-1 network 24 of Figure 3) comprising a first sink node (cluster head CH1) and a plurality of first communication terminals (the nodes shown in tier-1 network 24 of Figure 3) configured to wirelessly communicate with the first sink node (see lines 30-31 of column 2);

a second mesh network tier (tier-2 network 32 of Figure 3) geographically at least partly overlapping the first network (Figure 3 indicates that these networks at least partially geographically overlap) and comprising a second sink node (CH3 which is indicated as the cluster head of network 32) and a plurality of second communication terminals (CH1, CH2, CH4 of Figure 3) configured to wirelessly communicate with the second sink node (see lines 30-31 of column 2);

wherein the first sink node is further configured to operate as a second communication terminal for providing one of the first communication terminals with communications access to the second mesh network tier (see lines 50-59 of column 8).

Regarding claims **87, and 88**, Haas similarly discloses the analogous limitations of these claims.

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Regarding claim **37, 55, and 71**, Haas discloses the limitation that wireless communication in the first mesh network tier is independent of wireless communication in the second mesh network tier (see lines 45-46 of column 8).

Regarding claim **46**, Haas discloses throughout the limitation that the communication is data communication. Consider, for example, the discussion in lines 14-36 of column 3 which discussed routing packets which clearly contain data of some type.

Similarly, regarding claim **47**, Haas discloses the limitation that the communication is packet data communication. Again, consider the discussion in lines 14-36 of column 3 which discussed routing packets which clearly contain data of some type.

Regarding claims **49, 67, and 83**, Haas discloses the limitation that said communication in the first mesh network tier is radio communication (see claims 30-34 of column 2).

Regarding claims **50, 68, and 84**, Haas discloses the limitation that said communication in the second mesh network tier is radio communication (see claims 30-34 of column 2).

Regarding claim **80**, Haas discloses throughout the limitation that the communications unit is configured to wirelessly communicate data. Consider, for example, the discussion in lines 14-36 of column 3 which discussed routing packets which clearly contain data of some type as well as lines 30-34 of column 2 which indicates that this communication can be wireless.

Similarly, regarding claim **81**, Haas discloses the limitation that the wireless data communication is packet data communication. Again, consider the discussion in lines 14-36 of column 3 which discussed routing packets which clearly contain data of some type.

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Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims **38, 39, 40, 48, 56, 57, 58, 66, 72, 73, 74, and 82** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,304,556 to Haas in view of U.S. Patent 6,751,455 to Acampora.

Regarding claims **38, 56, and 72**, Haas discloses all limitations of parent claims 37, 55, and 71. However, Haas does not disclose expressly the limitation that wireless communication in the first mesh network tier is in a different frequency band from wireless communication in the second mesh network tier.

Acampora discloses the concept of using separate frequencies in each tier of a two-tier network architecture in lines 58-65 of column 6. Haas and Acampora are analogous art because

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they are from the same field of endeavor of wireless ad hoc networking. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Haas to use a different frequency in each tier of the network. The motivation for doing so would have been to allow communications at the two tiers to remain separate and not interfere with each other. Therefore, it would have been obvious to combine Acampora with Haas for the benefit of minimizing interference between the tiers to obtain the invention as specified in claims 38, 56, and 72.

Regarding claims **39 and 57**, Haas and Acampora disclose the limitations of parent claims 38 and 56, as indicated above. However, Haas does not disclose the limitation that the first mesh network tier comprises a plurality of first network sink node units with which the first mesh network tier subscriber units are configured to wirelessly communicate.

Acampora discloses the concept of multiple sink nodes in a tier throughout. In Acampora, the agents are the sink nodes at the first tier and Acampora suggests the use of “one or more proximately-located agents” in the abstract, for example. Haas and Acampora are analogous art because they are from the same field of endeavor of wireless ad hoc networking. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Haas to use a plurality of sink nodes in the first tier. The motivation for doing so would have been make the network more robust in the event of a failure of a sink node as well as to reduce the capacity requirements placed upon a single sink node. Therefore, it would have been obvious to combine Acampora with Haas for the benefit of improved robustness and capacity to obtain the invention as specified in claim 39 and 57.

Regarding claims **40 and 58**, Haas discloses the limitation that the system comprises a plurality of connections, each connection being between a respective first mesh network tier sink node unit and a respective second mesh network tier unit whereby one of the first mesh network tier subscriber units is configured to be provided with a communication path via the respective first mesh network tier sink node to respective second mesh network tier unit (see the plurality of connections in Figure 3 between first tier sink node CH 1 and second tier units CH 2 and CH 4, for example).

Regarding claim **48, 66, and 82**, Haas discloses that the communication is packet data communications, but does not expressly disclose that it uses an internet protocol. Haas suggests that this may be a means of interconnecting separate ad hoc networks in lines 3-9 of column 2. Acampora discloses connecting the two-tiered network to the Internet which discloses the limitation that the communication uses an internet protocol. At the time of the invention, it would have been obvious to one of ordinary skill in the art to use an internet protocol with the Haas system. The motivation for doing so would have been to allow the clients in Haas to communicate easily with users outside the ad hoc network.

Allowable Subject Matter

9. Claims **41-45, 51, 59-65, and 69** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT C. SCHEIBEL whose telephone number is 571-272-3169. The examiner can normally be reached on Mon-Fri from 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wing F. Chan can be reached on 571-272-7493. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ROBERT C. SCHEIBEL
Examiner
Art Unit 2419

/R. C. S./
Examiner, Art Unit 2419

/Wing F. Chan/
Supervisory Patent Examiner, Art Unit 2419
12/04/08